

Green is... local.

THINK GLOBALLY, ACT LOCALLY. While the concept has achieved bumper sticker status, it's more valid now than ever. Building products are increasingly global commodities. That bag of concrete bought to patch the walkway is likely from South America, and that granite countertop is probably fabricated in China. While market forces may suggest this makes sense, what about the environment and our local economy? The Built Green program gives points to builders that use local building products. (Visit www.builtgreen.net for info).

Buying local creates multiple benefits.

All else being equal, a local product represents a smaller environmental "footprint" than one from far away, due to transportation. Since our transport system depends heavily on non-renewable and polluting fuels, the farther a product has to travel to make it to your home, the larger the environmental impact. There are different types of "local." The ideal product is grown or sourced, manufactured, sold, and reused or recycled nearby.

There are other benefits to going local. It's easier to verify the environmental and social claims of a local product, and find out the reputation of the manufacturer or retailer. Also, since U.S. regulations are more stringent than many developing countries, the baseline for the treatment of workers and the environment is usually higher.

Finally (but by no means least), supporting the regional economy promotes local job creation, by keeping our dollars closer to home. And when you're buying green and socially responsible products made in our region, you're helping pave the way for a "local living economy." (See www.conservationeconomy.net to learn more.)

Find it in Fremont: an example of local action

Find it in Fremont www.finditin fremont.info helps residents locate products in Seattle's Fremont neighborhood that are from locally owned, independent businesses, locally produced, environmentally friendly, and/or socially responsible. So next time you reach into your wallet, aim those dollars at local products!

Moisture protection is key to your home's long-term durability.

Building science 101

In the last ten years, buildings shrouded in plastic have become a common sight in our wet Pacific Northwest. Often these are relatively new buildings, already experiencing failures of siding and exterior finishes, along with extensive mold problems. Meanwhile, the stucco apartment building from 1920 on Capitol Hill weathers swimmingly year after year.

Why are buildings failing?

Research shows a variety of factors conspire to create building failures, including diminishing construction quality, insufficient roofing overhangs, and (strangely) energy efficiency. Why? Back in the day before walls were insulated, buildings were quite forgiving when it came to water intrusion. Any wind-driven rain or moisture-laden air that made it past exterior cladding met with empty space, falling to the bottom of the wall cavity and (in the case of moderate amounts of moisture) evaporating. With the addition of insulation, moisture is less able to evaporate from the

wall cavity, increasing the likelihood of moisture damage.

Green building aims to create homes that are both energy efficient *and* durable. To do this, we need to adapt our design and construction

practices. A home is a complex system: changes in one element often affect others in unanticipated ways.

Building science is helping fill knowledge gaps in this area. Building science applies physical science principles to buildings to understand phenomena such as moisture migration, humidity, and energy transfer.

This science-based approach helps both identify problems and develop solutions. In the case of moisture damage, careful detailing around windows and doors, adequate overhangs, "rain screen" siding, and the efficacy and placement of moisture barriers are all topics informed by building science.

See www.buildingscience.com/resources/homeowner.htm for a wealth of information on building science, as well as preventing moisture damage while conserving energy.

August 2005 Inside:

- > Events and opportunities
- > Green home Q&A
- > Case study: basement remodel



City of Seattle
Gregory J. Nickels, Mayor

Seattle Public Utilities
Chuck Clarke, Director
700 5th Avenue,
Suite 4900
PO Box 34018
Seattle, WA
98124-4018

This newsletter can be made available on request to accommodate people with disabilities and those who need language translation assistance.
(206) 615-0731
(206) 233-7241 TTY
greenhome@seattle.gov

Events & educational opportunities

8/8, 5:30-7 P.M.: LEED FOR NEIGHBORHOOD DEVELOPMENT. How can LEED, the US Green Building Council's program for green buildings, be applied to neighborhood development? Find out at this lecture by Doug Farr, principal and founder of Farr Associates, an architecture, planning and architectural preservation firm. At the Seattle Central Library Auditorium, 1000 4th Ave.

8/24, 7-9 P.M.: GREEN HOME TOUR: BOB & KIM'S SENSIBLE HOUSE. Tour one of Seattle's greenest homes, featuring solar hot water, photovoltaic (solar electric) array, super-insulation, rainwater harvest for toilet flushing, and extensive use of salvaged, nontoxic and resource-efficient materials. Tour is limited to the first 30 to RSVP. Hosted by the Northwest EcoBuilding Guild. See www.ecobuilding.org and click on *Calendar* for more information under the date of the event.

8/25, 7 P.M.: ENVIRONMENTAL FILM NIGHT at Camp Long Environmental Learning Center. Showing: **"The Next Industrial Revolution."** Learn how design plays a key role in identifying a sustainable future in this film featuring architect Bill McDonough and chemist Michael Braungart, narrated by Susan Sarandon. See www.nweec.org/film_nights.htm for details and directions.

9/29, 7 P.M.: ENVIRONMENTAL FILM NIGHT at Camp Long Environmental Learning Center. Showing: **"Blue Vinyl."** This Emmy Award-winning documentary is part activist's journey, part comedy, and part detective story. See one woman's journey to discover the implications of her parents' decision to install vinyl siding on their home. See web address above for details.

Get involved!

VOLUNTEER WITH THE SEATTLE CHAPTER OF THE NORTHWEST ECOBUILDING GUILD! Seattle's primary green building organization is entirely volunteer-run. Whether you're a building professional, student, or homeowner, the Guild can use your help in its goal to educate professionals and the public about green building in the Pacific Northwest. Visit www.ecobuilding.org to learn more about the Guild by. If you're interested in being added to a list of volunteers, contact Dan Dunne at climbfree79@yahoo.com.

BECOME A CREEK STEWARD! Make a difference in one of our urban watersheds, while learning about our urban creeks. The Seattle Public Utilities Creek Steward program organizes work parties and holds educational and training events. Visit www.seattle.gov/util (click on *Drainage and Sewer* and then on *Get Involved*) to learn more.

Green home Q&A

Q: *I was wondering if by chance you have any information on the environmental issues associated with the siding product called HardiPlank? Also with clear-grade cedar as a comparison?*

A: Hardiplank and other "cement board" siding products are considered "green" in some circles, primarily due to their durability. In general, durability is environmentally beneficial in that less frequent replacement saves resources. However, as its name implies, the product contains cement, which is very energy intensive to produce. It's estimated cement production accounts for 7 to 10 percent of all human-created greenhouse gas emissions. Only a small amount of these emissions are related to cement board, of course—but it's a consideration.

Cement board is also made with heat-treated wood fiber, and Hardiplank uses Australian species of wood, since these hold up better to the treatment process. I've been unable to find info on the harvesting practices for this fiber. It's new wood fiber, though, rather than waste wood. One major advantage with cement board is how well it takes paint. Gathering evidence shows cement board needs to be repainted less often than wood siding. That has environmental, financial, and personal benefits!

Clear cedar also has green qualities, including that it has low "embodied energy" (the energy needed to manufacture and distribute a product—the higher the embodied energy, the greater the environmental impact), since most of the "manufacturing" occurs via photosynthesis. The big variable with wood products is whether they've been responsibly harvested.

To ensure wood is coming from responsibly managed forests, look for Forest Stewardship Council (FSC) certified woods. FSC uses an independent, third-party system to verify wood products' environmental and social performance. Visit www.certifiedwood.org to learn more about FSC and locate products.

Cedar's durability is another consideration. These days, the younger trees used for cedar siding have lower quantities of naturally occurring rot-inhibiting oils and therefore aren't as durable. That's another reason to look for FSC certified woods: these trees are usually left in the forest longer to mature and are generally higher quality than non-FSC products.

Have a green remodeling question of your own? Let us do the research for you!

Email questions to:

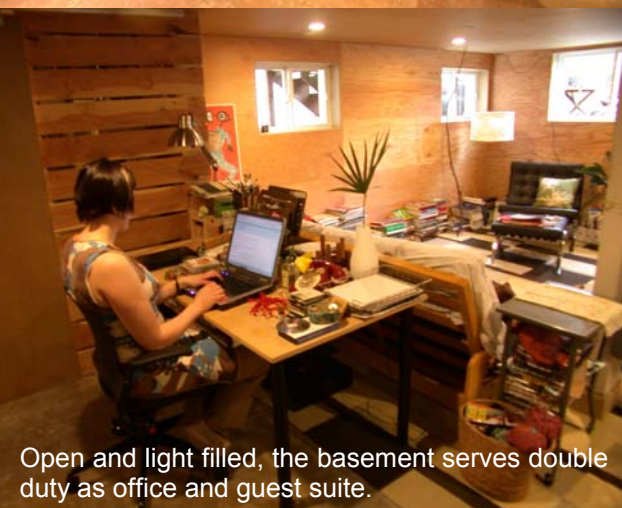
greenhome@seattle.gov

CASE STUDY:**Kahn | Evans basement remodel****OWNERS/DESIGNERS:** Aaron Kahn & Marni Evans**CONTRACTOR/DESIGNER:** Mark McPherson, Infuse Design Studio**LOCATION:** Phinney Ridge, Seattle**PROJECT SIZE:** 600 square feet**COST:** \$30 per square foot

Translucent panels let daylight pass through the stairwell while providing privacy from prying eyes.



The owners aren't alone in appreciating the durable, healthy materials in this remodel.



Open and light filled, the basement serves double duty as office and guest suite.

As Seattle's housing prices continue to skyrocket, existing space becomes ever more precious. One common remodeling activity is the basement finish-out. But lack of natural light, low ceiling heights, and moisture issues can make a basement less than welcoming. With careful planning and smart use of resources, this 1928 home nearly doubled its living space with a basement that's homey, light, and affordable.

Keeping it dry.

Before embarking on the project, Aaron and Marni made sure the space was dry. A 1996 downspout and gutter replacement, though helpful, had not eliminated basement leaks. Interior French drains, a back door overhang, along with a new threshold and door address any remaining moisture intrusion.

The existing bedroom and bathroom were carefully deconstructed, and undamaged framing and paneling were taken to The RE Store for reuse. The unfinished concrete floor was left in its original form, eliminating the need for floor finishes other than area rugs—durability is key with Bunker and Luna (the couple's rescued pit bulls) in the house.

Light-filled and energy-efficient.

Design elements maximize natural light. Old leaky windows were replaced, and light pours through three new locally manufactured fiberglass-framed, low-e (low emittance coatings reduce heat loss due to radiant heat transfer between panes of glass) insulating windows and a glazed back door. Interior walls at the stairwell and in the bathroom were partially constructed of a translucent polyethylene plastic made for greenhouses to allow light into the space while maintaining privacy.

The open plan and low-profile furniture gains visual space and functional flexibility (the living/office area can quickly convert to sleep as many as six guests) while helping all corners receive natural light and views out to the organic garden.

The basement utilizes 100 percent natural light during the day, and is zoned to concentrate electric light only where needed. Compact fluorescent bulbs in sealed, recessed can fixtures provide backup light. The result: ample, energy-efficient illumination without sacrificing ceiling height. Between wall studs, ceiling joists, and around the recessed cans, insulation made from the scraps of denim jean material keep the room—and bare toes upstairs—warm. A “truth window” (a small clear panel in the finished wall) reveals the insulation to the formerly skeptical.

Eco-friendly products.

The office/living area's plywood paneling is certified as responsibly harvested by the Forest Stewardship Council and lends structural integrity to the entire house, while serving as a warm and visually engaging finish surface. The ceiling is *wheatboard*, a particleboard alternative made from plant stems left over from grain production.

A thin layer of OSMO Hardwax Oil (a plant-based wood finish) protects the surface and imparts a slightly glossy sheen. The agricultural theme continues with modular carpet squares in the living area made from a renewable fiber derived from corn. The easily removable squares make it easy to confirm the new drainage is doing its job. The carpet will be sent back to the manufacturer for recycling at end of life.

Flexible, adaptable design.

Exposed screws and fasteners in the walls, partitions and ceiling facilitate modifications (like lifting the house, or disassembly by future occupants) with a minimum of waste, and add to the modern aesthetic.

(continued from page 3) To help maintain future salvage value of materials, spaces were designed to maximize use of full sheets of materials.

Adhesives were minimized, and limited to formulations with no or low volatile organic compounds (substances that readily convert to gas at room temperatures and can compromise air quality) which is healthier for humans and pets. In the bath, the floor and shower enclosure designs allow for easy disassembly and reuse.

Resource-wise bath, laundry and storage.

The bathroom features natural linoleum flooring (remnant stock from the Environmental Home Center), wheatboard walls, and a “scratch and dent sale” stainless steel sink. An old school door from The RE Store slides on an overhead track, adding space and character. An “Earth Shower” showerhead delivers a luxurious but low-flow spray, and the faucet’s aerator saves water.

A circulating pump provides instant hot water for the whole house. An efficient toilet replaced the existing “water-hog.” The couple doesn’t just rely on technology to save water, though. In the Kahn/Evans home, “the mantra ‘if it’s yellow, let it mellow...’ holds,” says Marni. Shelving (scrap safety glass discarded by a local retailer) eliminates the need for cabinetry. A fan and operable window keep the bath well ventilated and humidity levels low to prevent mold and mildew.

In the utility area, an Energy Star front-loading washer saves water, electricity, and detergent. The countertop is vintage schoolhouse slate, perfect for folding laundry, and a handy spot for notes and shopping lists. The salvaged laundry sink gives the new space a sense of history. Shelves are scraps of leftover wheatboard, and 100 percent recycled plastic mats on the floor reduce foot fatigue.

Marni’s closet and the water heater/storage area are faced in juniper wood from the Environmental Home Center. Gaps between the boards allow for ample air circulation, important in storage spaces. The wood comes from a land reclamation project in Oregon which removes the invasive juniper from disturbed areas and replants diverse native species. Its aromatic oils repel fabric-munching insects, and bring a pleasant outdoorsy scent to the space. The boards reference the original plan to use salvaged wood from shipping pallets (time and availability constraints dictated otherwise). Closet doors are scraps of wheatboard and slide on an overhead track, saving space and reducing visual clutter.

Lessons learned:

- Design for disassembly is a skill! The bathroom was a particular challenge. The linoleum flooring, placed without adhesive on an uneven plywood subfloor, has shifted slightly. As a result, the caulking along the shower edge is pulling away.
- Prevent moisture from wicking. Wheatboard along the floor near the backdoor is showing signs of wear and slight water damage. In future projects, they’ll limit the use of wheatboard to dry areas, and would hold the material at least an inch away from the concrete to avoid water from wicking up the paneling.

Aaron and Marni are delighted with their new space. As Marni says: “Every decision we made in our new space is embodied in every connection, every detail, and every material. The result is a constant reminder of how potent collaboration between people can be.”



Salvaged, efficient, recycled, durable—a hip mix of sustainability and style.



Adaptable furnishings and flexible spaces let the living space double as a guest room.



Built-in shelving and backsplash utilize safety glass castoffs.

Case study images © Marni Jade Evans

For further information on this project:

> Marni Evans: (206) 291-4568
marni@paladinoandco.com

> Aaron Kahn: (206) 227-9542
akahn@windermere.com

> Mark McPherson: (206) 779-5874
mark@infusedesignstudio.com

© 2005 Seattle Public Utilities
Sustainable Building Program